



Knowledge, Attitude, and Practice of Breeding Soundness Examination in Dogs among Veterinarians, Dog Owners and Breeders in Southeast Nigeria

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ABSTRACT

Breeding soundness examination (BSE) is a systematic veterinary assessment of reproductive potential in dogs, yet its adoption in developing countries remains poorly documented. This study evaluated the knowledge, attitude, and practice of BSE among veterinarians, dog owners, and breeders in southeast Nigeria. A cross-sectional Knowledge, Attitude and Practice (KAP) survey was conducted among 407 respondents (50.1% dog owners, 32.2% veterinarians, 17.7% dog breeders) across five states (Abia, Anambra, Ebonyi, Enugu, Imo) using a structured questionnaire. Data were analyzed using descriptive statistics, chi-square tests, and binary logistic regression ($p < 0.05$). The study revealed that while 77.1% of respondents had heard of BSE and 81.8% considered it very important before breeding, only 32.7% had ever conducted BSE. Overall, 58.0% had good KAP scores (mean 14.07 ± 3.64). Veterinarians demonstrated the highest good KAP (92.4%), followed by dog breeders (77.8%) and dog owners (28.9%). Females were 2.7 times more likely to have good KAP than males (Odds ratio: OR, 2.68, 95% Confidence interval: CI, 1.68-4.27). The major challenges identified were lack of access to veterinary professionals (80.8%) and inadequate awareness combined with insufficient trained veterinarians (63.3%). Encouragingly, 59.7% planned to include BSE in future breeding activities, and 91.9% recommended awareness campaigns as the primary intervention. This study reveals a significant knowledge-practice gap in canine BSE in southeast Nigeria, with good knowledge and attitudes failing to translate into adequate practice. Addressing structural barriers including veterinary access and awareness through targeted educational interventions is essential to improve BSE adoption, enhance reproductive outcomes, and promote responsible dog breeding in the region.

Keywords: Breeding soundness examination, Knowledge, Attitude, Practice, Southeast Nigeria

INTRODUCTION

Breeding soundness examination (BSE) is a systematic veterinary reproductive assessment designed to estimate an animal's ability to successfully breed and produce viable offspring under defined breeding conditions [1, 2]. In dogs, BSE encompasses a thorough history review, comprehensive physical examination with emphasis on the reproductive system, and laboratory or clinical evaluations including semen analysis in studs, vaginal cytology in bitches, and infectious disease screening such as *Bruceella canis* testing [3, 4]. The primary goals of BSE are to verify general health and fitness to breed, detect subfertility or infertility early, control infectious and zoonotic risks, and guide breeding management decisions [5, 6].

Canine reproduction has gained significant attention globally due to the increasing economic and emotional value placed on purebred dogs and the growing dog breeding industry [7, 8]. Infertility in breeding dogs can result in substantial financial losses, wasted time, and welfare issues if underlying diseases remain undetected [9]. Routine BSE promotes responsible breeding by ensuring that only healthy, disease-free animals are used, thereby reducing the spread of heritable and infectious problems while improving profitability for breeders [10].

Despite the well-documented benefits of BSE, studies from various parts of the world have consistently demonstrated gaps in knowledge, negative attitudes, and sub-optimal practices regarding reproductive health assessment in dogs. In developing countries, these challenges are often exacerbated by limited access to veterinary services, financial constraints, and inadequate awareness of the importance of preventive reproductive healthcare [11, 12].

A study conducted in Punjab, India, by Singh *et al.* [13] revealed that while dog owners exhibited acceptable knowledge of basic reproductive concepts, actual practices such as regular veterinary check-ups and pre-breeding evaluations remained poor. Similarly, in Tanzania *et al.* [14] reported that despite fair to good knowledge of dog management among 59% of respondents, practices were generally poor, with most dog owners keeping dogs for security purposes rather than prioritizing their health and welfare. Vaccination rates were significantly higher in urban areas compared to rural settings, and negative

experiences with dogs were reported by 78% of respondents [14].

Opaluwa-Kuzayed *et al.* [15] reported that while 65.9% of dog breeders in Jos metropolis identified when to mate a bitch through vaginal cytology testing and demonstrated knowledge of infectious causes of infertility, the mean knowledge score was only 13.10 ± 7.20 , indicating significant variability in understanding. Furthermore, the majority of breeders failed to consult veterinary services to reduce the incidence of reproductive conditions, suggesting a disconnect between knowledge and practice [15]. Chima *et al.* [16] documented that semen collection and laboratory evaluation are available and used diagnostically in Nigerian veterinary centers, demonstrating existing veterinary capacity. However, there is little research to show widespread awareness and utilization of these assisted reproductive technologies among dog breeders and owners. The common barriers identified include limited availability of expertise, high cost of clinical examinations, perception of BSE as a luxury rather than a necessity, lack of awareness and understanding of the benefits of BSE, and unwillingness to adopt practical changes despite accrued benefits [11, 17].

Veterinarians play a central role in conducting BSE, as they possess the expertise to perform comprehensive assessments of reproductive health in both male and female dogs [18]. This includes clinical evaluation of reproductive organs, semen collection and analysis, hormonal profiling, and assessment for infectious or hereditary conditions that could compromise fertility or progeny health [3]. By interpreting these findings, veterinarians can identify subfertility, congenital anomalies, and reproductive disorders early, advise on optimal breeding timing, and guide breeders on best practices to enhance reproductive efficiency [18].

The knowledge, attitude, and practice (KAP) model has been widely used to assess healthcare-related behaviors and identify gaps between what people know, how they feel, and what they actually do [19, 20]. Several studies have successfully applied the KAP framework to evaluate dog owners' and veterinarians' behaviors regarding various health issues [21, 22]. Regarding BSE specifically, Barstow *et al.* [23] emphasized that although infertility in bitches is not always the primary focus, a thorough physical examina-

tion at the beginning of a bitch's breeding career may help identify abnormalities that could cause future problems. Purswell *et al.* [24] provided guidelines for canine BSE, noting that interpretation of results remains challenging, particularly in infertility cases where thresholds between fertility and infertility may change for individual dogs based on breeding frequency.

The southeast region of Nigeria has witnessed increasing popularity of dog breeding in recent years [25]. However, there is limited practice of standardized reproductive health assessments such as BSE. This neglect often leads to poor reproductive performance, diminished overall breeding quality, perpetuation of genetic disorders or defects, impaired health of progeny, and financial losses for dog breeders and owners.

While evidence suggests that at least some Nigerian dog breeders are aware of basic reproductive health concepts relevant to breeding [15], there remains a significant gap in understanding the comprehensive knowledge, attitudes, and practices regarding full BSE protocols among veterinarians, dog owners, and breeders in southeast Nigeria. Furthermore, the specific challenges and limitations affecting BSE practice in this region have not been systematically documented. Therefore, this study aimed to evaluate the knowledge, attitude, and practice of breeding soundness examination in dogs among veterinarians, dog owners, and dog breeders in southeast Nigeria.

MATERIALS AND METHODS

Study Location

The study was carried out in the five states comprising the Southeast geopolitical zone of Nigeria: Abia, Anambra, Ebonyi, Enugu, and Imo States. This region is predominantly inhabited by the Igbo ethnic group and has witnessed significant growth in dog breeding and ownership in recent years, particularly in urban and peri-urban areas.

Study Population and Sampling

The target population included certified veterinarians practicing within the five states, dog owners, and dog breeders residing in the study area. Inclusion criteria were: (a) certified veterinarians practicing in southeast Nigeria within

veterinary clinical environments; (b) dog owners residing in the five states; and (c) dog breeders actively practicing within the five states.

A purposive sampling method was employed to select respondents. The sample size was calculated using the formula: $n = Z^2 p(1-p)/d^2$, where $Z = 1.96$ for 95% confidence interval, $p = 0.5$ (estimated proportion, as prevalence was unknown), and $d = 0.05$ (margin of error). This yielded a minimum sample size of 384 respondents. A total of 407 respondents participated in the study. Data was collected over a period of four months (July to October, 2025).

Data Collection Instrument

A structured questionnaire was developed based on a review of relevant literature [3, 13, 21, 22] and validated using face and content validity methods by a public health researcher. The questionnaire was administered electronically using Google Forms. Reliability was assessed using Cronbach's alpha (SPSS version 25), yielding a score of 0.7 which indicated that the instrument was acceptable for the study.

The questionnaire comprised six sections: Section 1: Demographic and socioeconomic details, Section 2: Knowledge of BSE, Section 3: Attitudes towards BSE, Section 4: Practice of BSE, Section 5: Challenges and limitations affecting BSE practice, Section 6: Recommendations for improving BSE practice

Ethical Considerations

Internationally accepted Ethical guidelines were strictly adhered to throughout the study. All respondents provided informed consent prior to participation. The study recorded 100% compliance.

Data Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics (frequencies, percentages, means, standard deviations) were computed for all variables. Inferential statistics, including chi-square tests and binary logistic regression, were used to determine associations between demographic factors and KAP scores. Values of $p < 0.05$ were considered statistically significant. For knowl-

edge assessment, a scoring system was applied to knowledge questions, with correct answers assigned one point each. Overall KAP scores were categorized as “good” (≥ 16 points) or “poor” (< 16 points) based on the mean score distribution.

RESULTS

Socio-demographic Characteristics

The sociodemographic data of the respondents presented in Table 1 shows that a total of 407 respondents participated, comprising dog owners 204 (50.1%), veterinarians 131 (32.2%), and dog breeders 72 (17.7%). The majority of the respondents were male (70.0%), aged 21-30 years (51.1%), and had 1-5 years of experience (58.5%). Respondents were distributed across Abia (33.2%), Anambra (21.6%), Imo (18.9%), Ebonyi (17.0%), and Enugu (9.3%) States.

Table 1: Socio-demographic characteristics of respondents (n = 407)

Variable	Category	Frequency (n)	Percentage (%)
State of residence	Abia	135	33.2
	Anambra	88	21.6
	Ebonyi	69	17.0
	Enugu	38	9.3
	Imo	77	18.9
	Total	407	100.0
Occupation	Veterinarian	131	32.2
	Dog owner	204	50.1
	Dog breeder	72	17.7
	Total	407	100.0
Sex	Male	285	70.0
	Female	122	30.0
	Total	407	100.0
Age (years)	≤ 20	2	0.5
	21 – 30	208	51.1
	31 – 40	115	28.3
	41 – 50	67	16.5
	> 50	15	3.7
	Total	407	100.0
Years of experience	1 – 5	238	58.5
	6 – 10	123	30.2
	11 – 15	37	9.1
	16 – 20	4	1.0
	> 20	5	1.2
	Total	407	100.0

Knowledge of Breeding Soundness Examination

The result on the knowledge of the respondents on breeding soundness examination presented in Table 2 shows that most respondents (77.1%) had heard of BSE. However, only 39.6% correctly defined it as a health check before both breeding and purchase. A majority (82.8%) knew BSE involves history and physical examination, and 79.1% correctly identified veterinarians as the appropriate professionals to conduct BSE. Regarding timing, 63.4% indicated the first BSE should be at 1-2 years of age, and 49.1% considered that BSE should be done both before purchase and before breeding. Most respondents (78.1%) recognized that both male and female dogs should undergo BSE. The primary benefit identified was prevention of unhealthy breeding and infertility (60.9%).

Table 2: Knowledge of Breeding Soundness Examination (BSE) in dogs in Southeast Nigeria

S/No.	Knowledge questions	Category	Frequency (n)	Percentage (%)
1	Have you ever heard of BSE in dogs?	Yes	314	77.1
		No	93	22.9
		Total	407	100.0
2	If yes, what do you think BSE in dog is?	A pregnancy check for female dogs	4	1.0
		A test for male animals only	9	2.2
		A health check before breeding a dog	151	37.1
		A health check before purchase of a dog	82	20.1
		A health check before breeding and purchase	161	39.6
		Total	407	100.0
3	What does BSE involve?	History review and physical examination	337	82.8
		Physical examination only	21	5.2
		Physical examination and semen analysis	15	3.6
		Physical examination and laboratory test	23	5.7
		Laboratory tests only	11	2.7
		Total	407	100.0
4	Who should conduct a BSE?	Veterinarians	322	79.1
		Dog breeders	83	20.4
		Dog owners	2	0.5
		Total	407	100.0
5	At what age should a dog undergo its first BSE?	< 1 year	74	18.2
		1 – 2 years	258	63.4
		> 2 years	75	18.4
		Total	407	100.0

6	At what point should BSE be carried out?	Prior to purchase	14	3.4
		Prior to breeding	193	47.4
		Both	200	49.1
		Total	407	100.0
7	In which animals should BSE be carried out?	Male	77	18.9
		Female	12	2.9
		Both	318	78.1
		Total	407	100.0
8	What benefits do you think BSE provides?	Prevents unhealthy breeding and helps prevent infertility	248	60.9
		Prevents unhealthy breeding only	104	25.6
		Prevents unhealthy breeding and increases puppy survival	9	2.2
		Helps prevent infertility only	16	3.9
		Increases puppy survival only	7	1.7
		Not sure	23	5.7
		Total	407	100.0

Attitude towards Breeding Soundness Examination

On the attitude of the respondents towards breeding soundness examination presented in Table 3, it was revealed that positive attitudes predominated. Most respondents (81.8%) considered BSE very important before breeding, and 68.8% strongly supported having their dogs examined by a veterinarian before breeding. Additionally, 63.9% indicated they would very likely recommend BSE to fellow dog owners and breeders.

Table 3: Attitudes of respondents toward breeding soundness examination (BSE) in dogs

S/No.	Attitude statement	Response	Frequency (n)	Percentage (%)
1	Importance of BSE before breeding a dog	It is very important	333	81.8
		It is somewhat important	48	11.8
		Not important	26	6.4
		Total	407	100.0

2	What is your opinion on conducting a BSE before purchasing a dog?	It is very important	205	50.4
		It is somewhat important	147	36.1
		Not important	55	13.5
		Total	407	100.0
3	How do you feel about having your dog examined by a veterinarian before breeding?	I strongly support it and would do it	280	68.8
		I somewhat support it, but only in certain cases	104	25.6
		I am not familiar with the idea	6	1.5
		I do not think BSE in dogs is important	17	4.1
		Total	407	100.0
4	How likely are you to recommend BSE to fellow dog owners and breeders?	Very likely	260	63.9
		Somewhat likely	66	16.2
		Not likely	17	4.2
		I'm not sure	64	15.7
		Total	407	100.0

Practice of Breeding Soundness Examination

In Table 4, practice levels were substantially lower than knowledge and attitude. Only 32.7% had conducted BSE, while 25.8% had requested BSE from a veterinarian. Among those who had performed BSE, only 35.3% did so before every mating, while 48.3% did so only occasionally. Encouragingly, 59.7% planned to include BSE in their next breeding activity, and 56.5% expressed interest in attending BSE training seminars.

Table 4: Practice of breeding soundness examination (BSE) in dogs among respondents in Southeast Nigeria

S/No.	Practice statement	Response	Frequency (n)	Percentage (%)
1	Have you ever conducted or requested BSE before breeding a dog?	Yes, I have conducted BSE in a dog before	133	32.7
		Yes, I have requested a BSE for my dog from a veterinarian	105	25.8

		No, I have never conducted a BSE in a dog before	91	22.4
		No, I am not familiar with BSE in dogs	62	15.2
		No, I have not requested a BSE for a dog before	16	3.9
		Total	407	100.0
2	If yes, how often do you conduct or request BSE in a dog? (n = 238 who answered yes in Q1)	Before every mating	84	35.3
		Occasionally	115	48.3
		Only when problem arises	39	16.4
		Total	238	100.0
3	Who performs BSE?	A veterinarian	247	60.7
		Myself	73	17.9
		My fellow dog breeders	65	15.5
		My fellow dog owners	22	5.4
		Total	407	100.0
4	Do you intend to include BSE in your next breeding activity?	Yes, I plan to use BSE	243	59.7
		No, I do not plan to use BSE	103	25.3
		I am not sure yet	53	13.0
		I do not trust BSE in dogs	8	1.7
		Total	407	100.0
5	Would you be interested in attending a seminar or training focused on dog breeding and BSE in dogs?	Yes, I would be very interested	230	56.5
		I might be interested, depending on topic and location	94	23.1
		No, I am not interested	76	18.7
		I do not participate in dog breeding activities	7	1.7
		Total	407	100.0

Overall KAP Score

The result for the overall KAP is presented in Table 5. The result revealed that fifty-eight percent (58.0%) of respondents had good overall KAP scores (≥ 16), while 42.0% had poor scores. The mean KAP score was 14.07 ± 3.64 .

Table 5: Overall KAP score of respondents towards breeding soundness examination in dogs

Variable	Category	Frequency (n)	Percentage (%)	Mean $\pm$ SD
KAP	Good (≥ 16)	236	58.0	14.07 $\pm$ 3.64
	Poor (< 16)	171	42.0	
	Total	407	100.0	

Factors Associated with KAP Scores

In table 6, statistically significant associations were found between KAP scores and all demographic variables ($p < 0.001$). Enugu State had the highest proportion of good KAP (81.6%), followed by Abia (70.4%), while Imo had the lowest (33.8%). Females (73.8%) demonstrated higher good KAP than males (51.2%). By occupation, veterinarians had the highest good KAP (92.4%), followed by dog breeders (77.8%), while dog owners had the lowest (28.9%).

Binary logistic regression confirmed that female respondents were 2.7 times more likely to have good KAP (OR 2.68, 95% CI 1.68-4.27). Dog owners (OR 0.03) and dog breeders (OR 0.29) were significantly less likely to have good KAP compared to veterinarians.

Table 6: Factors associated with KAP scores on breeding soundness examination in dogs

Variable	Category	Good KAP n (%)	Poor KAP n (%)	χ^2	p-value
Location	Abia	95 (70.4)	40 (29.6)	37.017	0.000*
	Anambra	47 (53.4)	41 (46.6)		
	Ebonyi	37 (53.6)	32 (46.4)		
	Enugu	31 (81.6)	7 (18.4)		
	Imo	26 (33.8)	51 (66.2)		
Sex	Male	146 (51.2)	139 (48.8)	17.819	0.000*
	Female	90 (73.8)	32 (26.2)		
Age (years)	≤ 20	2 (100.0)	0 (0.0)	57.812	0.000*
	21 – 30	155 (74.5)	53 (25.5)		
	31 – 40	37 (32.2)	78 (67.8)		
	41 – 50	34 (50.7)	33 (49.3)		
	> 50	8 (53.3)	7 (46.7)		
Occupation	Veterinarian	121 (92.4)	10 (7.6)	145.870	0.000*
	Dog owner	59 (28.9)	145 (71.1)		
	Dog breeder	56 (77.8)	16 (22.2)		

Years of experience	1 – 5	151 (63.4)	87 (36.6)	21.564	0.000*
	6 – 10	66 (55.3)	55 (44.7)		
	11 – 15	10 (27.0)	27 (73.0)		
	16 – 20	2 (50.0)	2 (50.0)		
	> 20	5 (100.0)	0 (0.0)		

*Statistically significant at $p < 0.05$

Challenges Affecting BSE Practice

Table 7 presents the challenges affecting breeding practices and the practices of BSE in dogs. The major challenges identified were lack of access to veterinary professionals (80.8%), lack of awareness about BSE combined with inadequate number of trained veterinarians (63.3%), and lack of awareness combined with high cost of BSE services (12.8%).

Table 7: Challenges affecting breeding practices and the practice of BSE in dogs

S/N	Challenges and limitations	Responses	Frequency (n)	Percentage (%)
1	What challenges do you think affects breeding practices in your area?	Lack of access to veterinary professionals	329	80.8
		Financial constraint	11	2.7
		Financial constraint and lack of access to veterinary professionals	22	5.4
		Financial constraint and limited knowledge of modern breeding technique	6	1.5
		Financial constraint and poor record keeping among breeders/owners	10	2.5
		Lack of standard regulations and policies	13	3.2
		Poor record keeping among breeders/owners	7	1.7
		Limited knowledge of modern breeding technique	9	2.2
		Total	407	100

2	What do you think are barriers and limitations of the practice of BSE in your area?	Lack of awareness about BSE	32	7.9
		Lack of awareness about BSE; and high cost of BSE services	52	12.8
		Lack of awareness about BSE; and inadequate number of trained veterinarians	258	63.3
		Inadequate number of trained veterinarians	16	3.9
		Lack of awareness about BSE; and poor access to veterinary facilities	31	7.6
		Poor access to veterinary facilities	18	4.4
		Total	407	100.0

Recommendations on BSE in dogs

Table 8 presents the recommendations on BSE in dogs. The overwhelming majority (91.9%) recommended awareness campaigns on the benefits of BSE, while 5.4% recommended subsidizing BSE services, and 1.7% recommended better access to veterinary services.

Table 8: Recommendations on BSE in dogs by study participants (N = 407)

Recommendations	Responses	Frequency (n)	Percentage (%)
What can be done to encourage more use or practice of BSE in your area?	Awareness campaign on the benefits of BSE	374	91.9
	Subsidizing the cost of BSE services	22	5.4
	Better access to veterinary services	7	1.7
	Training and workshop for breeders and dog owners	2	0.5
	Inclusion of BSE in local breeding regulations	1	0.2
	Partnership with breeders associations for outreach	1	0.2
	Total	407	100.0

DISCUSSION

The finding that 77.1% of respondents had heard of BSE is comparable to reports from Tanzania where 59% of dog keepers demonstrated fair to good knowledge of dog management [14], and Nigeria where 90% of dog owners were aware of rabies [21]. However, the proportion that correctly defined BSE as a comprehensive health check (39.6%) was lower, suggesting superficial awareness rather than in-depth understanding. This knowledge gap is consistent with observations by Opalu-

wa-Kuzayed *et al.* [15] in Jos, Nigeria, where breeders demonstrated knowledge of specific reproductive concepts but lacked comprehensive understanding of BSE protocols.

The finding that 79.1% correctly identified veterinarians as the appropriate professionals to conduct BSE agrees with recommendations by Davidson [4] and Schwartz *et al.* [3], who emphasized that BSE requires specialized veterinary expertise. The high proportion (78.1%) who recognized that both sexes should undergo BSE reflects growing awareness of gender-inclusive reproductive assessment, consistent with Barstow *et al.* [23].

The positive attitude demonstrated (81.8% considering BSE very important) mirrors findings from similar KAP studies where dog owners generally showed favorable attitudes toward preventive healthcare when adequately informed [14, 21]. However, the gap between positive attitudes (81.8%) and actual practice (32.7%) represents a classic knowledge-attitude-practice disconnect documented in health behavior literature [19, 20]. This gap has been attributed to structural barriers including limited veterinary access and financial constraints [11, 17].

The low practice rate (32.7% had conducted BSE) is concerning and substantially lower than rabies vaccination coverage (58.7%) reported by Aiyedun *et al.* [22] in Ilorin, Nigeria. This suggests that BSE is perceived as less essential than rabies vaccination despite its importance for reproductive health and genetic quality. The finding that only 35.3% of those who performed BSE did so before every mating indicates that even among those that adopted it, regular systematic use is not the norm, reflecting a reactive rather than preventive approach [11]. The high proportion (60.7%) who utilized veterinarians for BSE is reassuring, but the substantial minority (17.9%) that performed BSE themselves is concerning, as proper BSE requires specialized training and equipment [24].

The significantly higher KAP among veterinarians (92.4%) compared to dog owners (28.9%) and breeders (77.8%) is expected given the professional training, as corroborated with findings from Sri Lanka where veterinarians demonstrated moderate to high knowledge of canine health issues [26]. The better performance of breeders compared to owners suggests that active involvement in breeding activities motivates knowledge

acquisition, likely through economic incentives to improve litter outcomes [10].

The geographic variation, with Enugu (81.6%) and Abia (70.4%) States having the highest good KAP, likely reflects the presence of veterinary teaching hospitals in these states serving as centers for continuing education and referral services. The lower KAP in Imo State (33.8%) suggests need for targeted interventions.

The identification of lack of access to veterinary professionals (80.8%) as the primary barrier is consistent with reports from other Nigerian studies [15] and developing country [12]. The combined barrier of lack of awareness and inadequate trained veterinarians (63.3%) shows the compounded nature of challenges in resource-limited settings [11]. The overall good KAP rate (58%) is comparable to findings from Tanzania (59%) [14] and Nigeria (68.9% for rabies knowledge) [21], suggesting consistency across Sub-Saharan African setting. The practice gap identified (32.7% conducted BSE) mirrors low adoption rates for other recommended veterinary practices in the region [14, 21], indicating that improving practice remains the greatest challenge in animal health behavior change. The knowledge-practice gap, coupled with expressed interest in training (56.5%) and strong endorsement of awareness campaigns (91.9%), indicates that educational interventions targeting dog owners and breeders, combined with improved veterinary access, could substantially improve BSE adoption and ultimately enhance canine reproductive health in southeast Nigeria.

CONCLUSION

This study concludes that knowledge and attitudes toward breeding soundness examination among veterinarians, dog owners, and breeders in southeast Nigeria are generally moderate to good (58% good KAP). However, actual practice of BSE remains inadequate (only 32.7% have conducted BSE), representing a significant knowledge-practice gap. Veterinarians demonstrate superior KAP compared to dog owners and breeders, revealing their role as change agents.

The major barriers to BSE practice include lack of access to veterinary professionals, inadequate number of trained veterinarians, lack of awareness, and financial constraints. Factors associated with good KAP include female sex, younger

age, veterinary occupation, and location in states with veterinary teaching hospitals. Addressing these barriers through targeted educational interventions, service delivery innovations, and policy support is essential to improve BSE adoption, enhance reproductive outcomes, reduce economic losses and promote responsible dog breeding in Southeast Nigeria.

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Conflict of interest

There is no conflict of interest.

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